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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Nobuyuki Satoh

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03/13/2006

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EXAMINER

PHAM, HAI CHI

ART UNIT

PAPER NUMBER

2861

DATE MAILED: 03/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/735,691

Applicant(s)

SATOH, NOBUYUKI

Examiner

Hai C. Pham

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-15, 18 and 19 is/are rejected.
- 7) ☒ Claim(s) 6, 7, 16 and 17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

FINAL REJECTION

Claim Objections

1. Claims 9, 10 are objected to because of the following informalities:

Claim 9:

- Line 16, "the position detection pattern" should read --a position detection pattern-- because of lack of antecedent basis;
- Line 18, "focused by" should read --focused on--.

Claim 10:

- Line 10, "patter" should read --pattern--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 5, 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eom (Pub. No. U.S. 2003/0053093) in view of Dwyer, III (U.S. 5,030,986) and Hoshino et al. (U.S. 4,912,491).

Eom discloses an apparatus to control color registration in an image recording device, the apparatus comprising a color registration sensor including a light source

(101-1, Fig. 7) that outputs light, an image sensor (photodetector 101-3) and a focusing unit (focusing lens 101-4) that focuses the light reflected from the position detection pattern (e.g., registration mark 120) onto the image sensor.

Eom fails to teach the synthesizing unit that passes the light of the light source so as to illuminate the position detection pattern, and collects and reflects a light reflected from the position detection pattern, and the light synthesizing unit including a prism.

Dwyer, III discloses a film printing and reading system including an image sensing device including a focal mechanism (Fig. 10) comprising a light source (901), a light receiving sensor (950) and a synthesizing unit (beam splitter 905) that passes the light of the light source so as to illuminate the position of the recording medium (940), and collects and reflects the light reflected from the recording medium and a focusing unit (lens 930) for focusing the returned light onto the light receiving sensor. Dwyer, III further teaches the light synthesizing unit including a prism (beam splitter 905).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the device of Eom with the light synthesizing unit as taught Dwyer, III. The motivation for doing so would have been to allow the light receiving sensor to receive the returned light at the proper focal position.

Eom also fails to teach using a two-dimensional image sensor.

Hoshino et al. discloses a misregistration detecting system for use in an image forming apparatus, the device includes a pair of two-dimensional image sensors (e.g., image sensors 14A and 15A) for detecting the registration marks (e.g., marks 16Y and 16M) (col. 12, lines 3-6).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide a two-dimensional image sensor in the device of Eom as taught by Hoshino et al. The motivation for doing so would have been to allow the image sensor to receive the reflected light that covers the entire registration mark.

Eom further teaches:

- the position detection pattern includes a plurality of lines that are parallel to each other (e.g., registration mark pattern 270 having a plurality of parallel lines) (Fig. 16),
- the image sensor and the light source being mounted on a same circuit board (Fig. 7).

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eom in view of Dwyer, III and Hoshino et al., as applied to claim 1 above, and further in view of Sikes et al. (U.S. 6,499,402).

Eom, as modified by Dwyer, III, and Hoshino et al., discloses all the basic limitations of the claimed invention except for the position detection pattern including dots of a predetermined size.

Sikes et al. discloses a system for controlling the registration of the web printing press including a CCD sensor (30) for sensing the registration pattern (110) printed on the web, the registration pattern comprising a plurality of dots printed on the web at precise locations (Fig. 5A).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the registration pattern of the device of Eom having a plurality of dots as taught by Sikes et al. The motivation for doing so would have been to allow a precise control of the registration of the different color images.

5. Claims 11, 13, 15, 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eom in view of Hennings (U.S. 3,712,740) and Hoshino et al.

Eom discloses all the basic limitations of the claimed invention (please refer to paragraph 2 above for the rejection of the claimed limitations) except for the second reflecting surface.

Hennings discloses in Fig. 6 a misalignment detecting device comprising a light source (13), a synthesizing unit in the form of a first half mirror (15) for passing the light emitted from the light source (13) to illuminate the register mark (3), the first half mirror reflects the reflected light from the register mark toward a second half mirror (16) using as a second reflecting surface for reflecting the light beam reflected from the first half mirror into the measuring device (5).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the second reflecting into the device of Eom as taught by Hennings. The motivation for doing so would have been to redirect the reflected light beam to the light sensor, which is located on the same circuit board as the light source.

Eom also fails to teach using a two-dimensional image sensor.

Hoshino et al. discloses a misregistration detecting system for use in an image forming apparatus, the device includes a pair of two-dimensional image sensors (e.g., image sensors 14A and 15A) for detecting the registration marks (e.g., marks 16Y and 16M) (col. 12, lines 3-6).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide a two-dimensional image sensor in the device of Eom as taught by Hoshino et al. The motivation for doing so would have been to allow the image sensor to receive the reflected light that covers the entire registration mark.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eom in view of Hennings and Hoshino et al., as applied to claim 11 above, and further in view of Dwyer, III.

Eom, as modified by Hennings and Hoshino et al., discloses all the basic limitations of the claimed invention except for the synthesizing unit being a prism.

Dwyer, III discloses an image sensing device including a synthesizing unit in the form of a beam splitter (905) that passes the light of the light source so as to illuminate the position of the recording medium (940), and collects and reflects the light reflected from the recording medium and a focusing unit (lens 930) for focusing the returned light onto the light receiving sensor, the beam splitter (905) being a prism.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide half mirror in the device of Eom, as modified by

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Hennings, with the light synthesizing unit in the form of a prism as taught Dwyer, III, since it is well known in the art that the prism beam splitter is an alternate means for the half mirror, both of which have the same function, namely selectively passing and reflecting a light beam.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eom in view of Hennings and Hoshino et al., as applied to claim 11 above, and further in view of Sikes et al.

Eom, as modified by Hennings and Hoshino et al., discloses all the basic limitations of the claimed invention except for the position detection pattern including dots of a predetermined size.

Sikes et al. discloses a system for controlling the registration of the web printing press including a CCD sensor (30) for sensing the registration pattern (110) printed on the web, the registration pattern comprising a plurality of dots printed on the web at precise locations (Fig. 5A).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the registration pattern of the device of Eom having a plurality of dots as taught by Sikes et al. The motivation for doing so would have been to allow a precise control of the registration of the different color images.

Allowable Subject Matter

8. Claims 6-7 and 16-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Pertinent Prior Art

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Shimada et al. (U.S. 6,285,849) teaches a misregistration detecting system for use in an image forming apparatus, the device includes a light source (laser 25) that outputs light, a synthesizing unit in the form of a half-mirror (36) that passes the light of the light source so as to illuminate the position detection pattern (registering patterns 21a, 21b) formed on the transfer belt, collects and reflects the light reflected from the position detection pattern, and an image sensor (photodiode 29).

Nakayasu et al. (U.S. 6,049,690) discloses registration marks in the form of parallel lines, each line includes a conglomeration of dots forming the desired density of the line.

Matsuura et al. (U.S. 5,205,988) discloses registration marks in the form of stripes or dots.

Response to Arguments

10. Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new grounds of rejection.

Conclusion

11. Applicant's amendment, which changed the scope of each of the base claims, necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



HAI PHAM
PRIMARY EXAMINER

March 4, 2006